

10/529114

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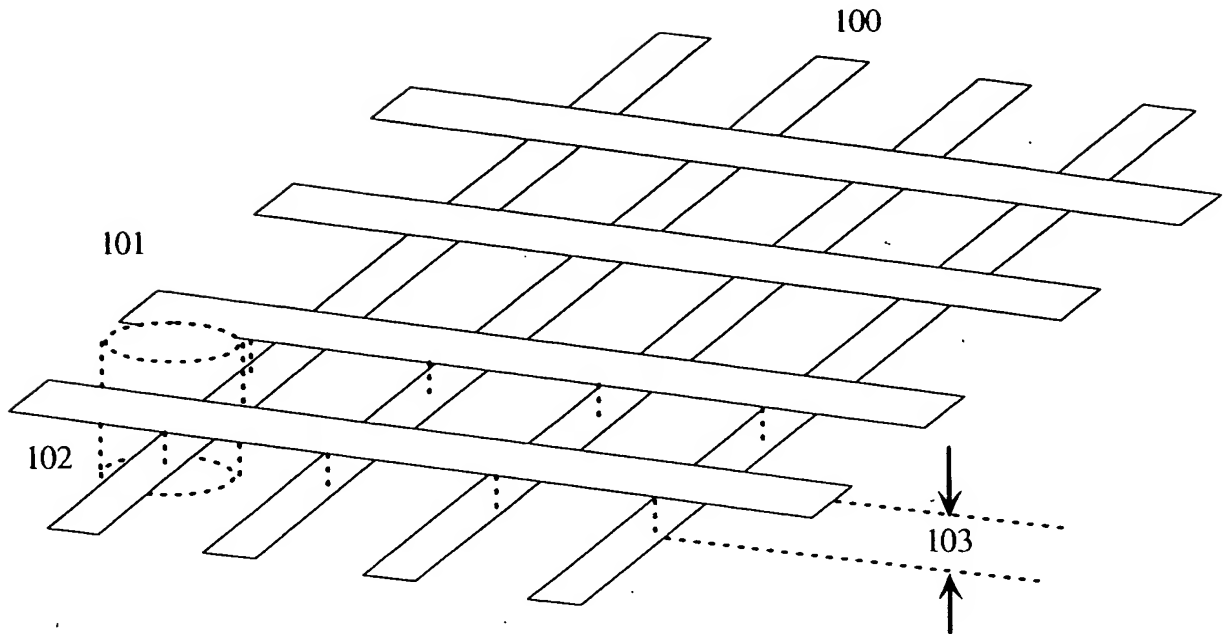


Figure 1

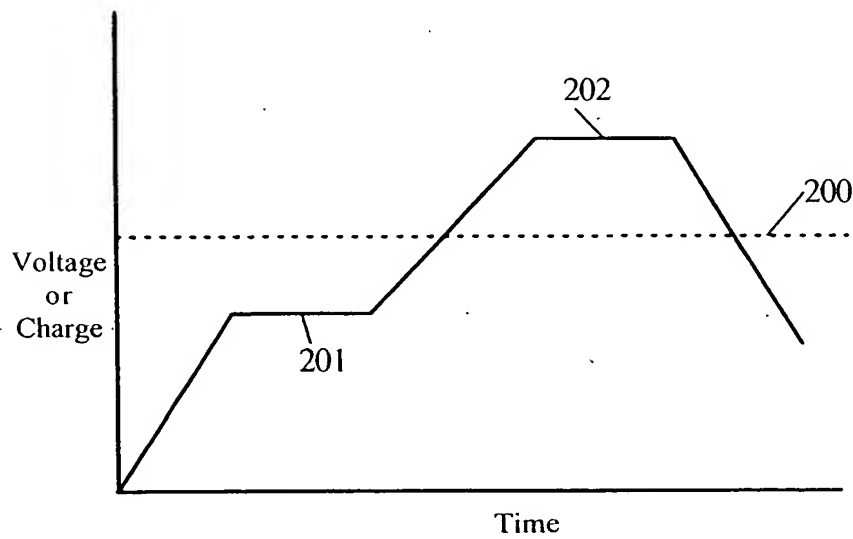


Figure 2

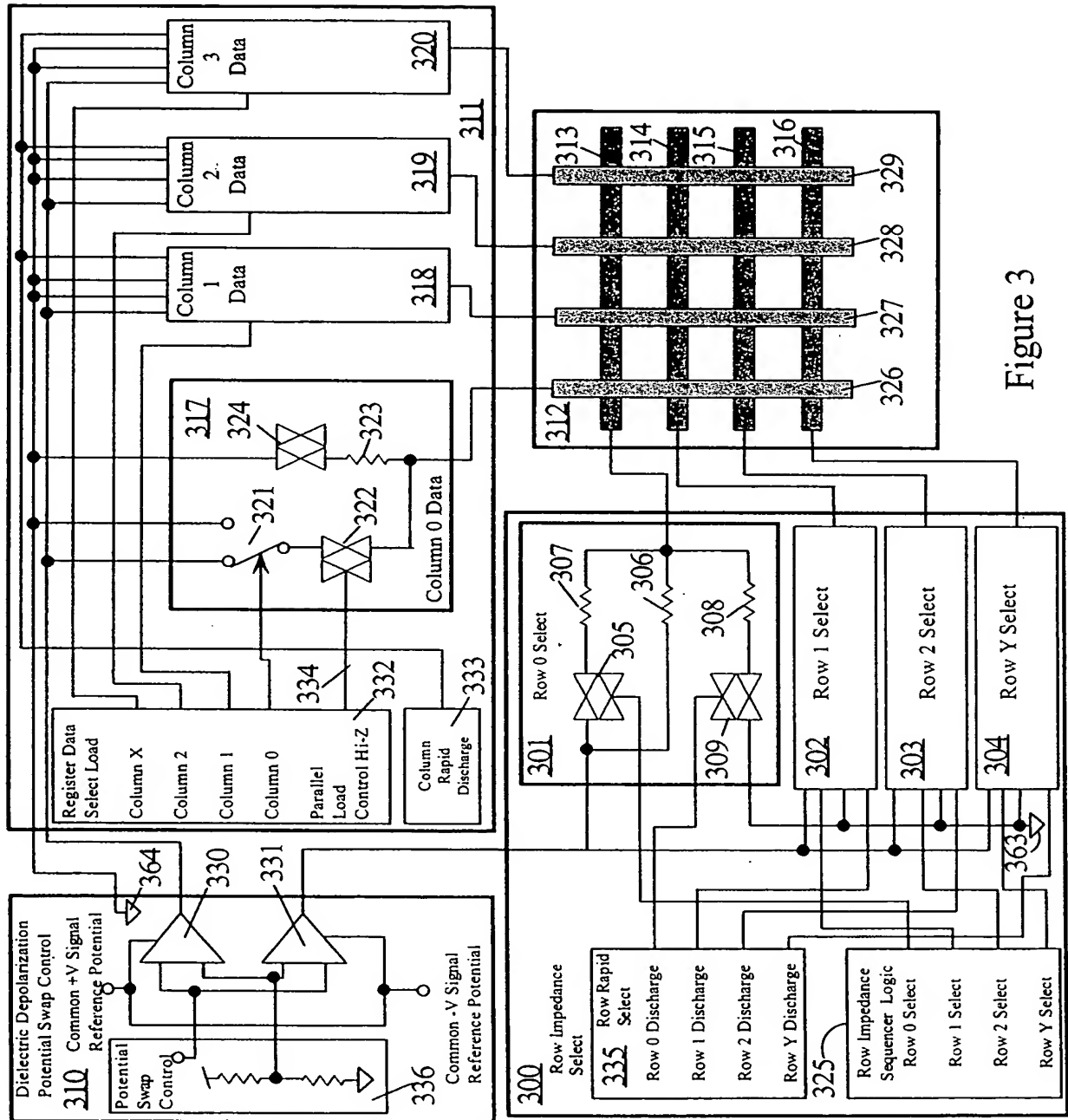
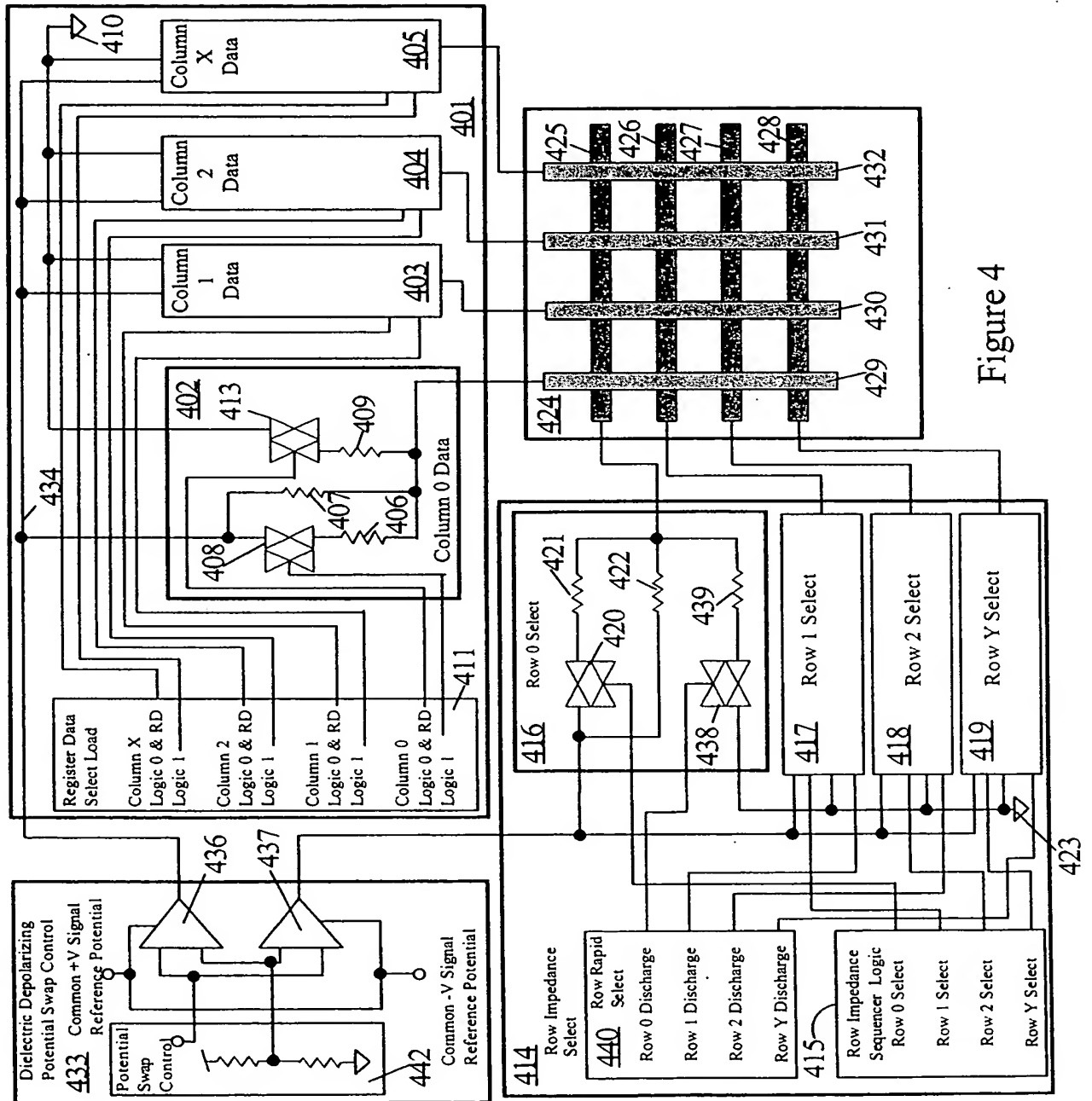
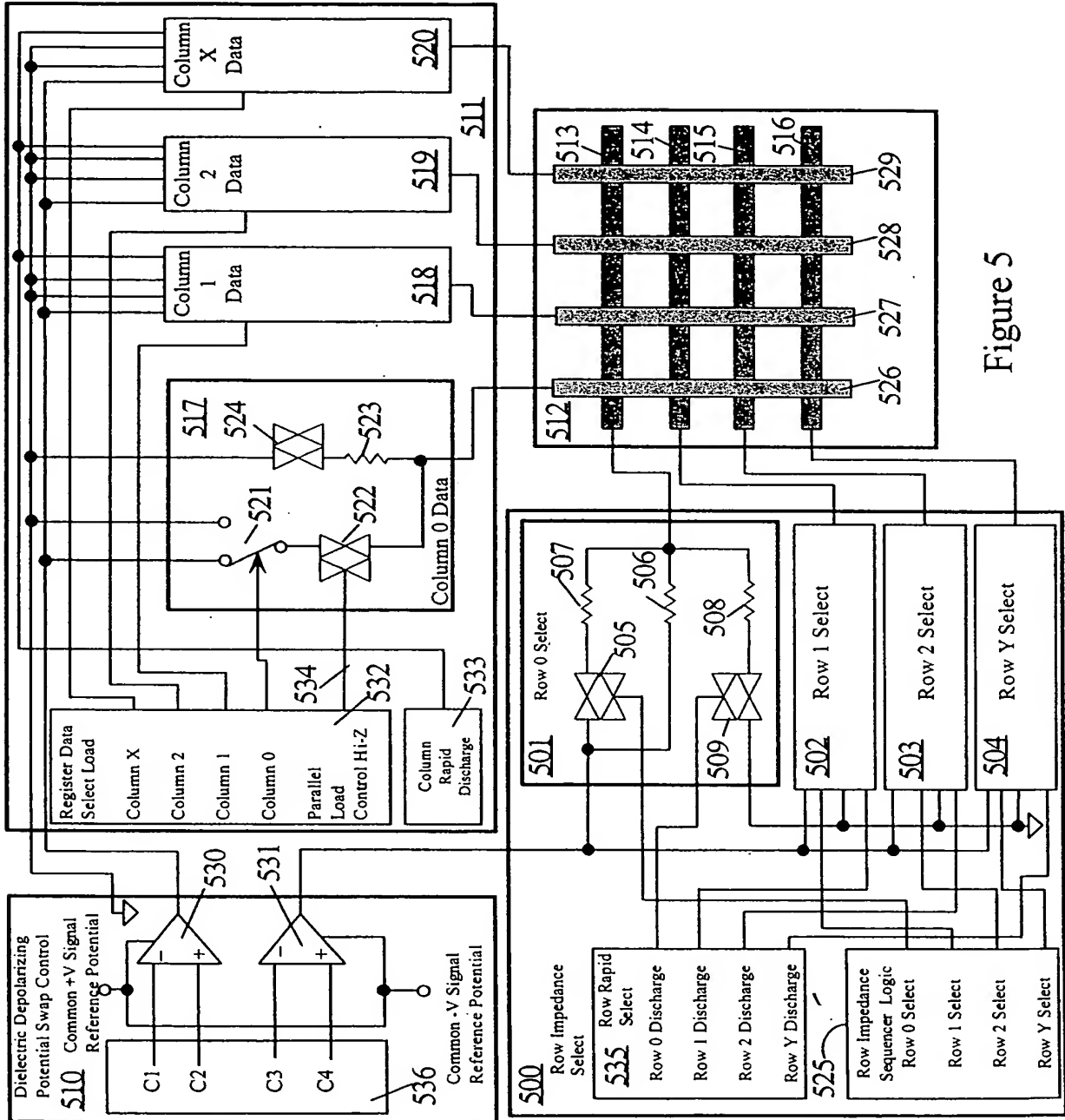
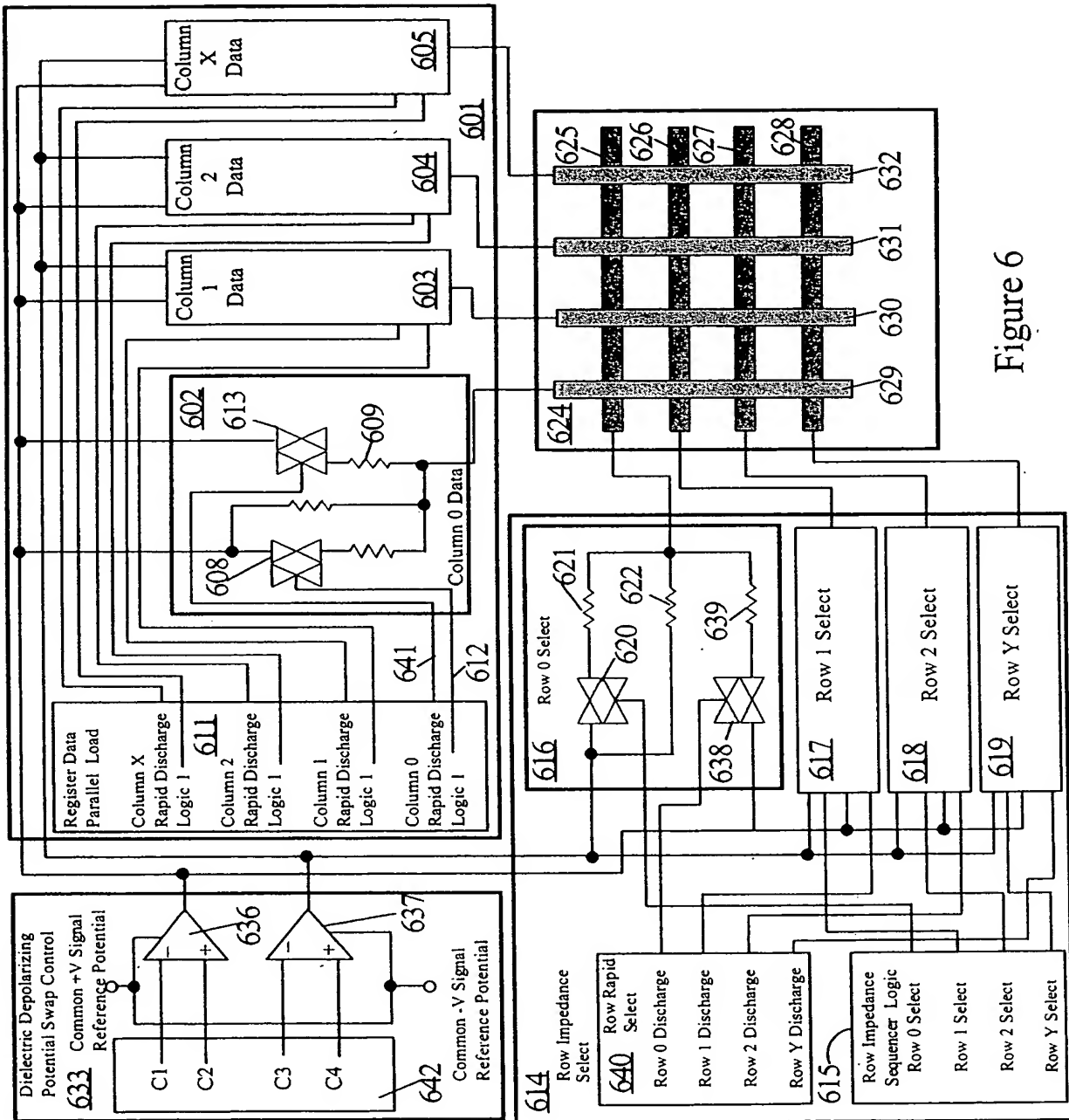


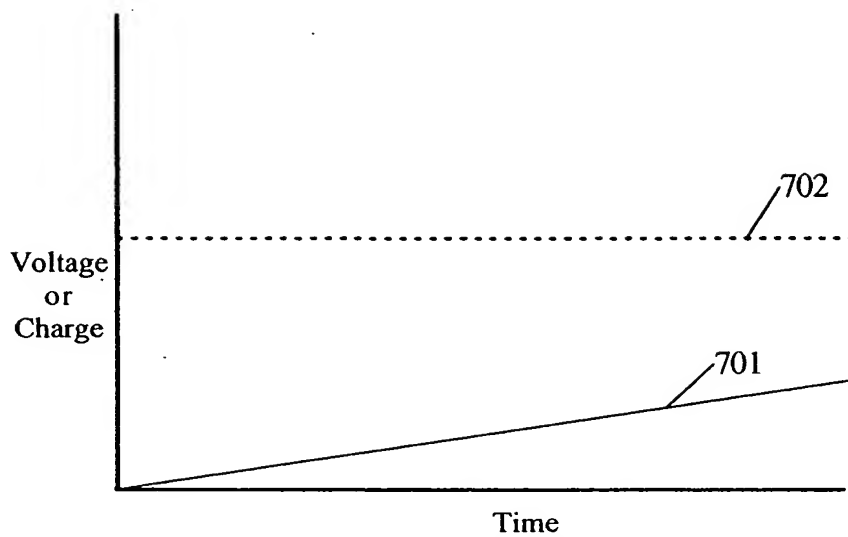
Figure 3





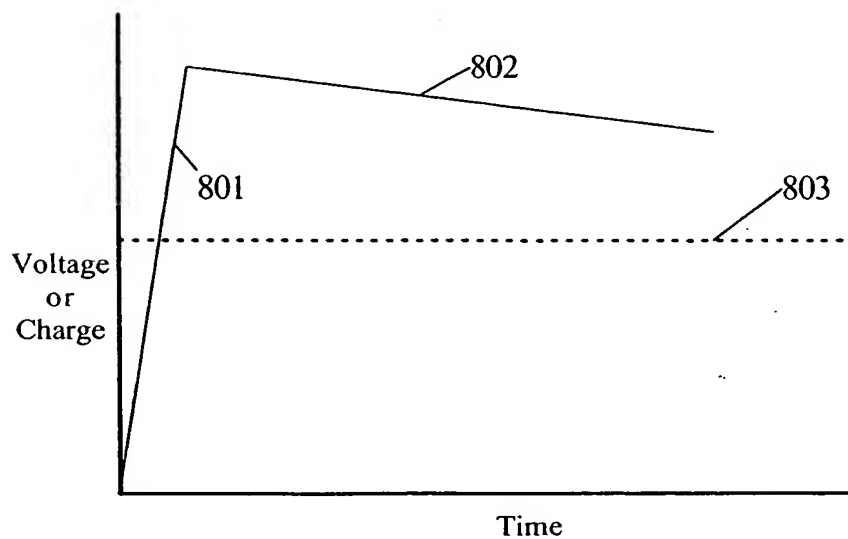


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High Impedance Charge Profile

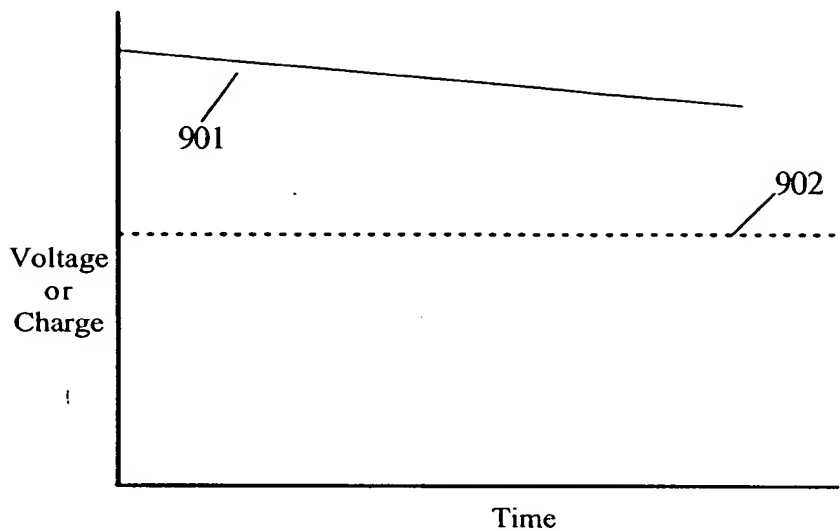
Figure 7



Low Impedance Charge Profile

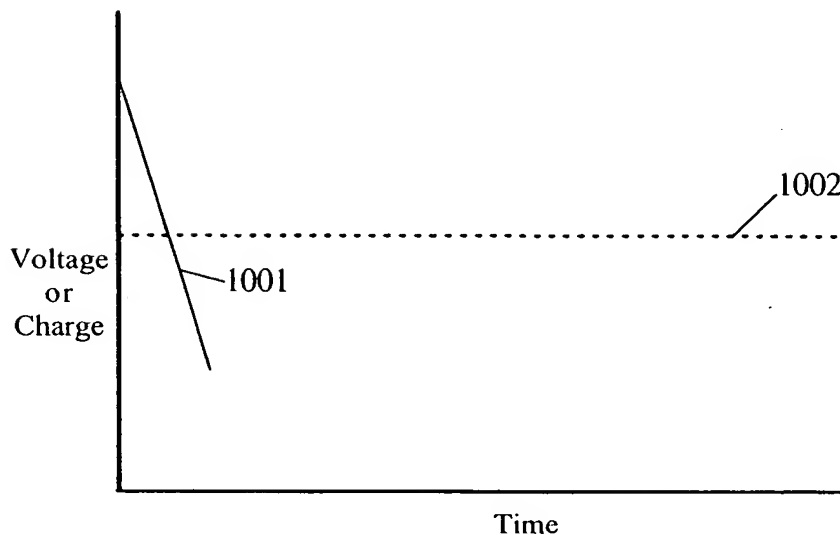
Figure 8

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High Impedance Discharge Profile

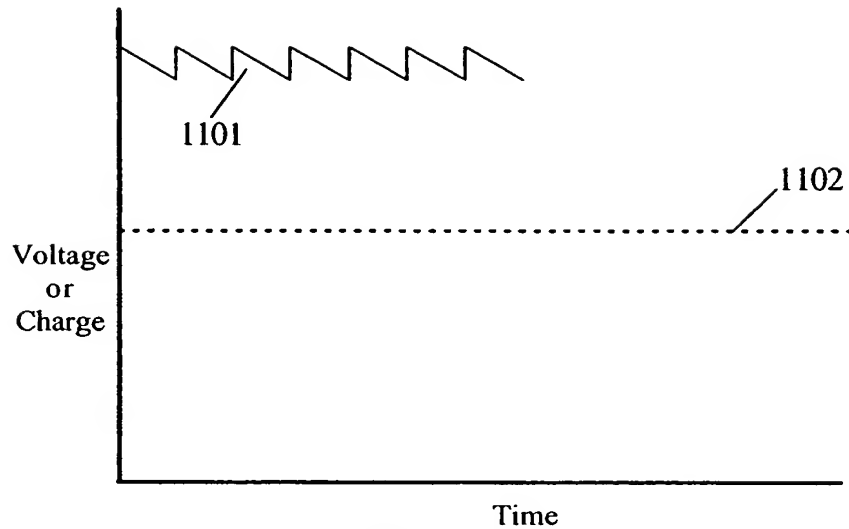
Figure 9



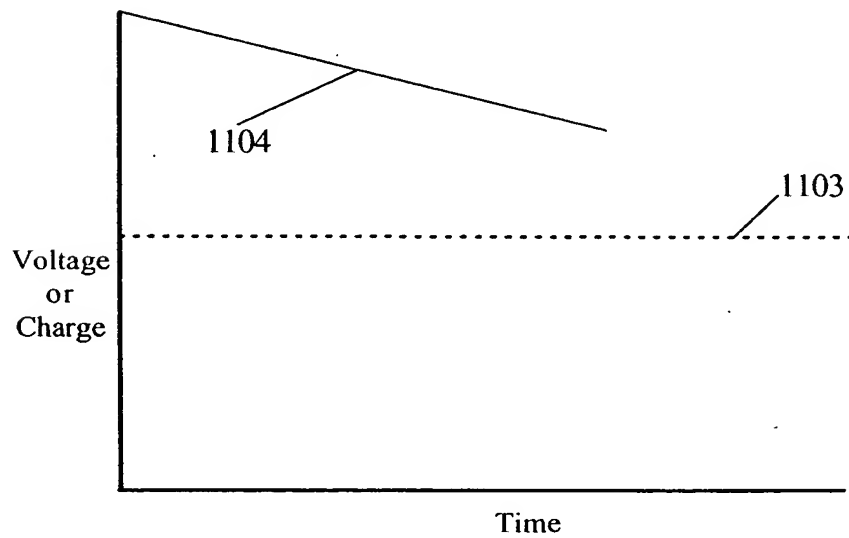
Low Impedance Charge Profile

Figure 10

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Continuous Mode: Charge every subcycle
(6 arbitrary subcycles shown for illustration)



Burst Mode: Charge every cycle
(burst lasts for same 6 arbitrary sub-cycles as in
continuous mode case above for illustration)

Figure 11

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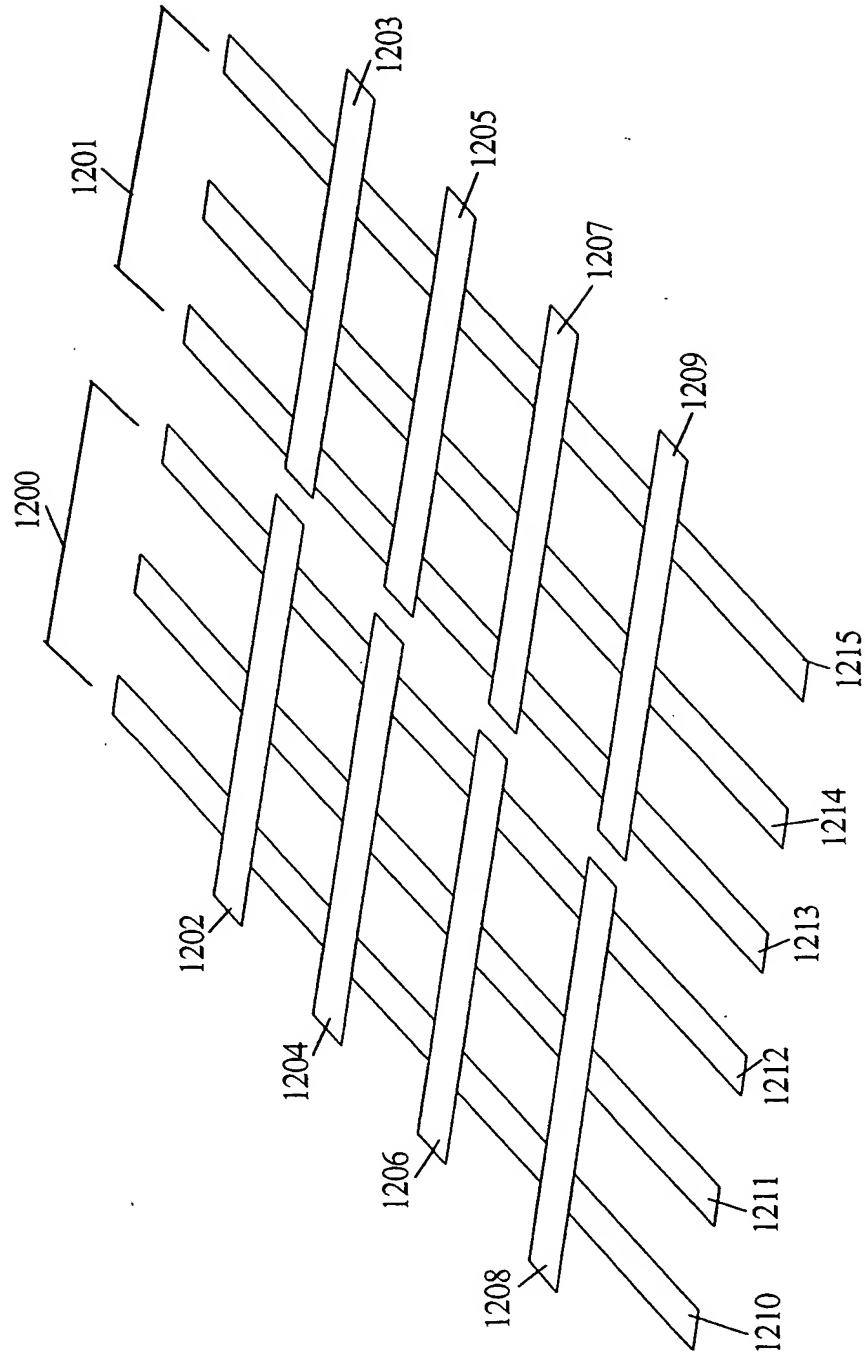


Figure 12

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1301

330	331
+V	-V
-V	+V

1302

Pixel State	Data 321	PLC 334	ROW 325	CRD 333	RRD 335	330	331	COL 326	ROW 313
All pixels in active row blanked (OFF)	X	L	All L	H	H	+V	-V	Gnd	Gnd
All pixels in active row blanked (OFF)	X	L	All L	H	H	-V	+V	Gnd	Gnd
Intersecting pixel in active row Fast Charge (ON)	H	H	H	All L	All L	+V	-V	+V	-V
Intersecting pixel in active row Fast Charge (ON)	H	H	H	All L	All L	-V	+V	-V	+V
All pixels in active column Fast Charge (ON)	H	H	All H	All L	All L	+V	-V	+V	-V
Intersecting pixel in active row Slow change (OFF)	L	H	H	All L	All L	-V	+V	Gnd	+V
Intersecting pixel in active row Slow change (OFF)	L	H	H	All L	All L	+V	-V	Gnd	-V
All pixels in active column Slow change (OFF)	L	H	All H	All L	All L	+V	-V	Gnd	-V
All pixels hold previous state, Slow change	X	L	All L	All L	All L	+V	-V	Gnd	-V
All pixels hold previous state, Slow change	X	L	All L	All L	All L	-V	+V	Gnd	+V
State Not Allowed	H	H	H	H	H	-V	+V	Short to Gnd	
State Not Allowed	H	H	H	H	H	+V	-V	Short to Gnd	

Figure 13

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1401

436	437
+V	-V
-V	+V

1402

Pixel State	CRD/ Logic 0 441	Logic 1 412	ROW 415	RRD 440	436	437	Col 429	Row 425
All pixels in active row blanked (OFF)	L	L	All L	H	-V	+V	Hi-Z	Gnd
All pixels in active row blanked (OFF)	L	L	All L	H	+V	-V	Hi-Z	Gnd
Intersecting pixel in active row Fast Discharge (OFF)	H	L	H	All L	+V	-V	Gnd	-V
All pixels Fast Discharge	All H	All L	All L	All H	+V	-V	Gnd	Gnd
All pixels Slow Discharge	L	H	All L	All H	-V	+V	-V	Gnd
Intersecting pixel in active row Fast Charge (ON)	L	H	H	All L	+V	-V	+V	-V
Intersecting pixel in active row Fast Charge (ON)	L	H	H	All L	-V	+V	-V	+V
All pixels in active column Fast Charge (ON)	L	H	All H	All L	+V	-V	+V	-V
All pixels hold previous state, Hi-Z	X	L	All L	All L	-V	+V	-V	+V
All pixels hold previous state, Hi-Z	X	L	All L	All L	+V	-V	+V	-V
State Not Allowed	H	H	H	H	-V	+V	Short to Gnd	Short to Gnd
State Not Allowed	H	H	H	H	+V	-V	Short to Gnd	Short to Gnd
State Not Allowed	H	H	H	All L	-V	+V	Short to Gnd	Short to Gnd
State Not Allowed	H	H	All H	All L	+V	-V	Short to Gnd	Short to Gnd

Figure 14

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1501

C1	C2	C3	C4	530	531
L	H	L	H	+V	+V
H	L	L	H	-V	+V
L	H	H	L	+V	-V
H	L	H	L	-V	-V

1502

Pixel State	Data 521	PLC 534	ROW 525	CRD 533	RRD 535	530	531	COL 526	ROW 513
All pixels in active row blanked (OFF)	X	L	All L	H	H	+V	+V	+V	+V
All pixels in active row (ON)	X	L	All L	H	H	-V	+V	+V	-V
All pixels in active row (ON)	X	L	All L	H	H	+V	-V	-V	+V
All pixels in active row blanked (OFF)	X	L	All L	H	H	-V	-V	-V	-V
Intersecting pixel in active row (OFF)	X	H	H	All L	All L	+V	+V	+V	+V
Intersecting pixel in active row (OFF)	X	H	H	All L	All L	-V	-V	-V	-V
Intersecting pixel in active row Fast Charge (ON)	H	H	H	All L	All L	+V	-V	+V	-V
Intersecting pixel in active row Fast Charge (ON)	H	H	H	All L	All L	-V	+V	-V	+V
All intersecting pixels in active Col Fast Charge (ON)	H	H	All H	All L	All L	+V	-V	+V	-V
Intersecting pixel in active row Slow change (OFF)	L	H	H	All L	All L	-V	+V	Gnd	+V
Intersecting pixel in active row Slow change (OFF)	L	H	H	All L	All L	+V	-V	Gnd	-V
All pixels in active column Slow change (OFF)	L	H	All H	All L	All L	+V	-V	Gnd	-V
All pixels hold previous state	X	L	All L	All L	All L	+V	+V	+V	-V
All pixels hold previous state	X	L	All L	All L	All L	-V	+V	-V	+V
All pixels hold previous state	X	L	All L	All L	All L	+V	-V	+V	-V
All pixels hold previous state	X	L	All L	All L	All L	-V	-V	-V	-V
All pixels in active row blanked (OFF)	H	H	H	H	H	+V	+V	+V	+V
State Not Allowed	H	H	H	H	H	-V	+V	STG	
State Not Allowed	H	H	H	H	H	+V	-V	STG	
All pixels in active row blanked (OFF)	H	H	H	H	H	-V	-V	-V	-V

Figure 15

1601

C1	C2	C3	C4	636	637
L	H	L	H	+V	+V
H	L	L	H	-V	+V
L	H	H	L	+V	-V
H	L	H	L	-V	-V

1602

Pixel State	ORD/ Logic 0 641	Logic 1 612	ROW 615	RRD 640	636	637	COL 629	ROW 625
All pixels in active row blanked (OFF)	L	L	All L	1H	+V	+V	+V	+V
All pixels in active row blanked (OFF)	L	L	All L	1H	-V	+V	-V	-V
All pixels in active row blanked (OFF)	L	L	All L	1H	+V	-V	+V	+V
All pixels in active row blanked (OFF)	L	L	All L	1H	-V	-V	-V	-V
Intersecting pixel in active row Fast Discharge	L	H	1H	All L	+V	+V	+V	+V
Intersecting pixel in active row Fast Discharge	L	H	1H	All L	-V	-V	-V	-V
Intersecting pixel in active row Fast Charge (ON)	L	H	1H	All L	+V	-V	+V	-V
Intersecting pixel in active row Fast Charge (ON)	L	H	1H	All L	-V	+V	-V	+V
All pixels in active row blanked (OFF)	H	L	1H	All L	+V	+V	+V	+V
All pixels in active row blanked (OFF)	H	L	1H	All L	-V	+V	+V	+V
All pixels in active row blanked (OFF)	H	L	1H	All L	+V	-V	-V	-V
All pixels in active row blanked (OFF)	H	L	1H	All L	-V	-V	-V	-V
Slow Charge, no activation	X	L	All L	All L	+V	+V	+V	+V
Slow Charge, no activation	X	L	All L	All L	-V	+V	-V	+V
Slow Charge, no activation	X	L	All L	All L	+V	-V	+V	-V
Slow Charge, no activation	X	L	All L	All L	-V	-V	-V	-V
Fast Change, no activation	L	H	All H	All L	+V	+V	+V	+V
All pixels in active Column Fast Charge (ON)	L	H	All H	All L	-V	+V	-V	+V
All pixels in active Column Fast Charge (ON)	L	H	All H	All L	+V	-V	+V	-V
Fast Change, no activation	L	H	All H	All L	-V	-V	-V	-V
All pixels in active row blanked (OFF)	H	H	1H	1H	+V	+V	+V	+V
State Not Allowed	H	H	X	X	-V	+V	Short to Gnd	
State Not Allowed	H	H	X	X	+V	-V	Short to Gnd	
All pixels in active row blanked (OFF)	H	H	1H	1H	-V	-V	-V	-V

Figure 16

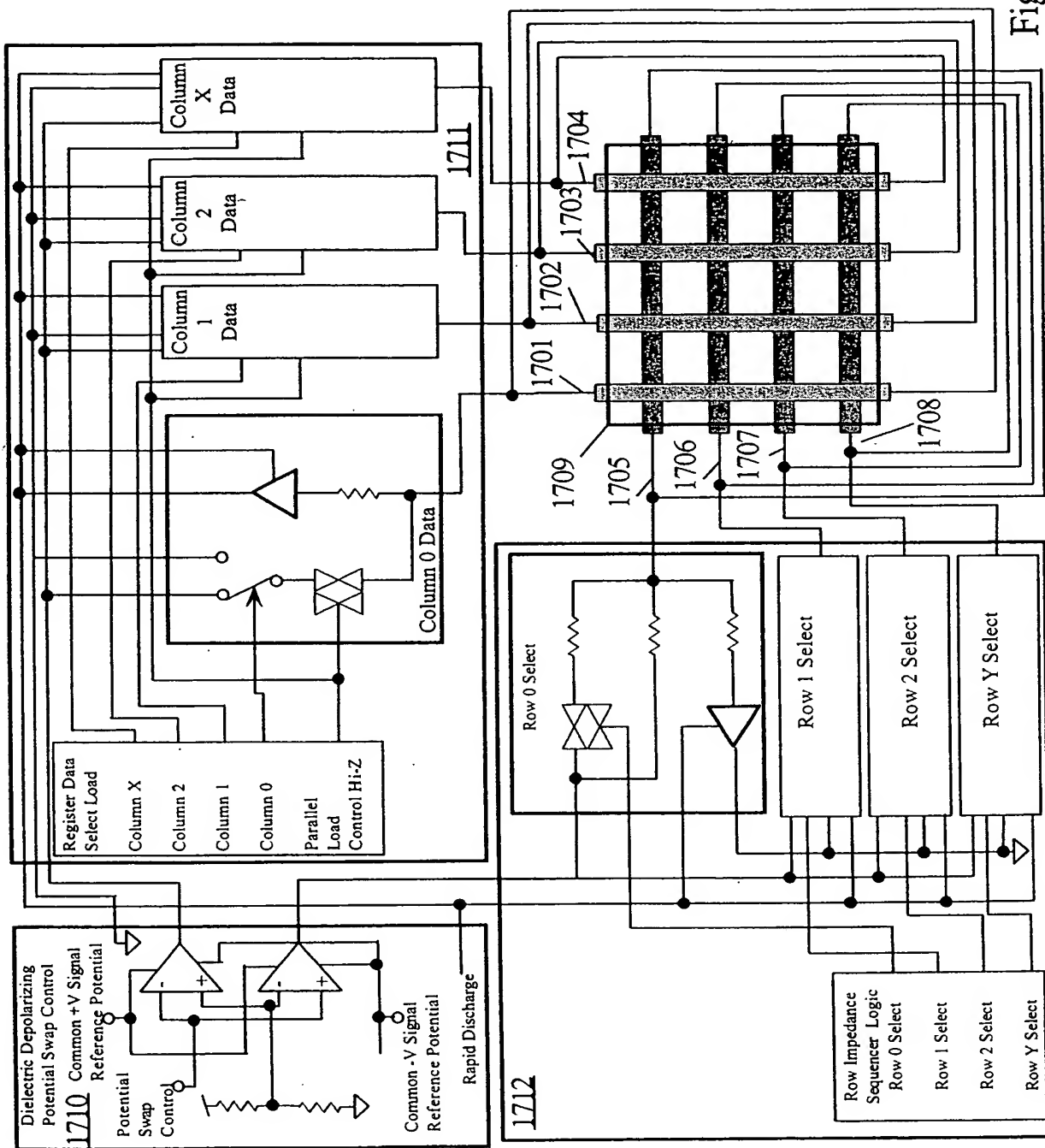


Figure 17

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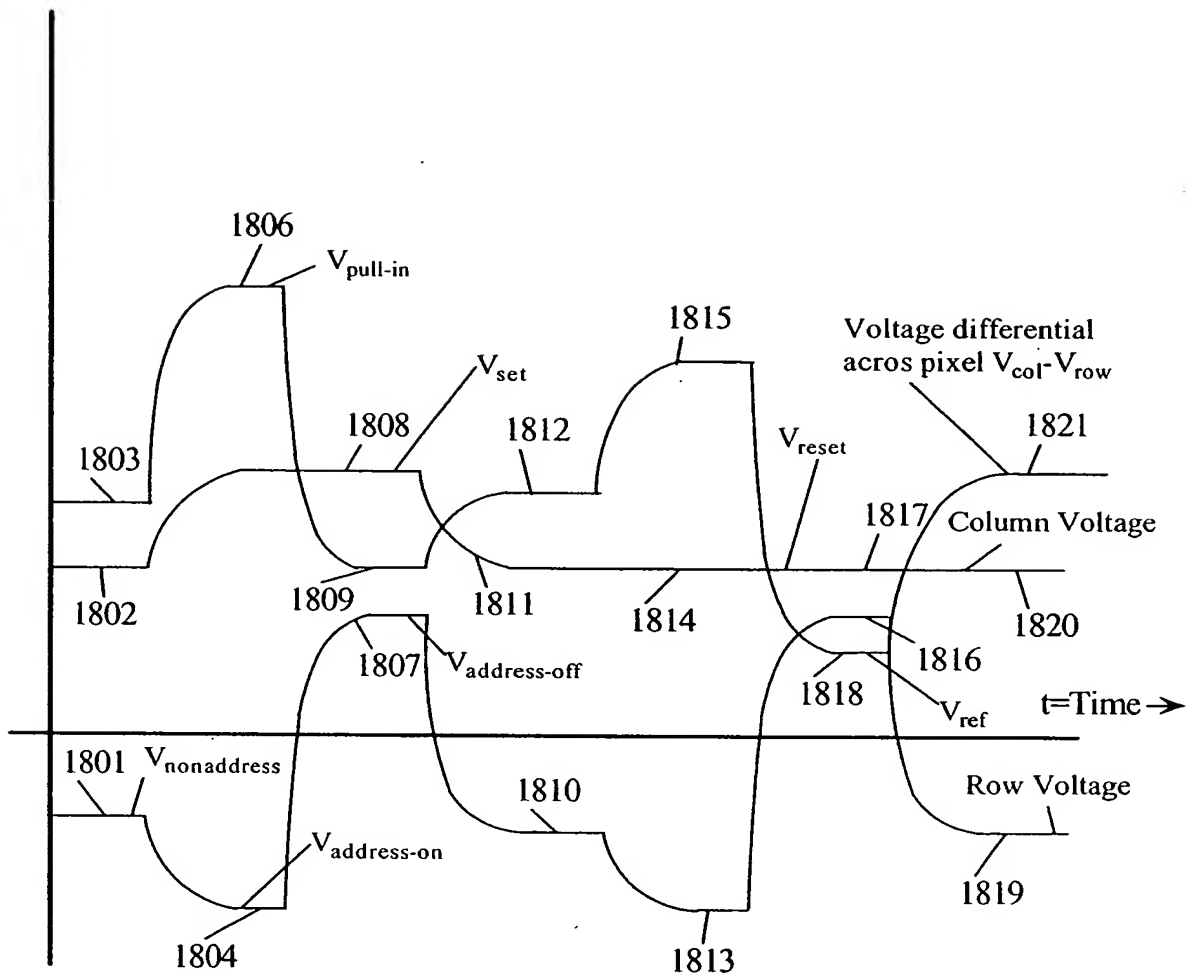


Figure 18

Row Voltages, Column Voltages, and Resulting Differential Voltages at the crossover points of X-Y matrix

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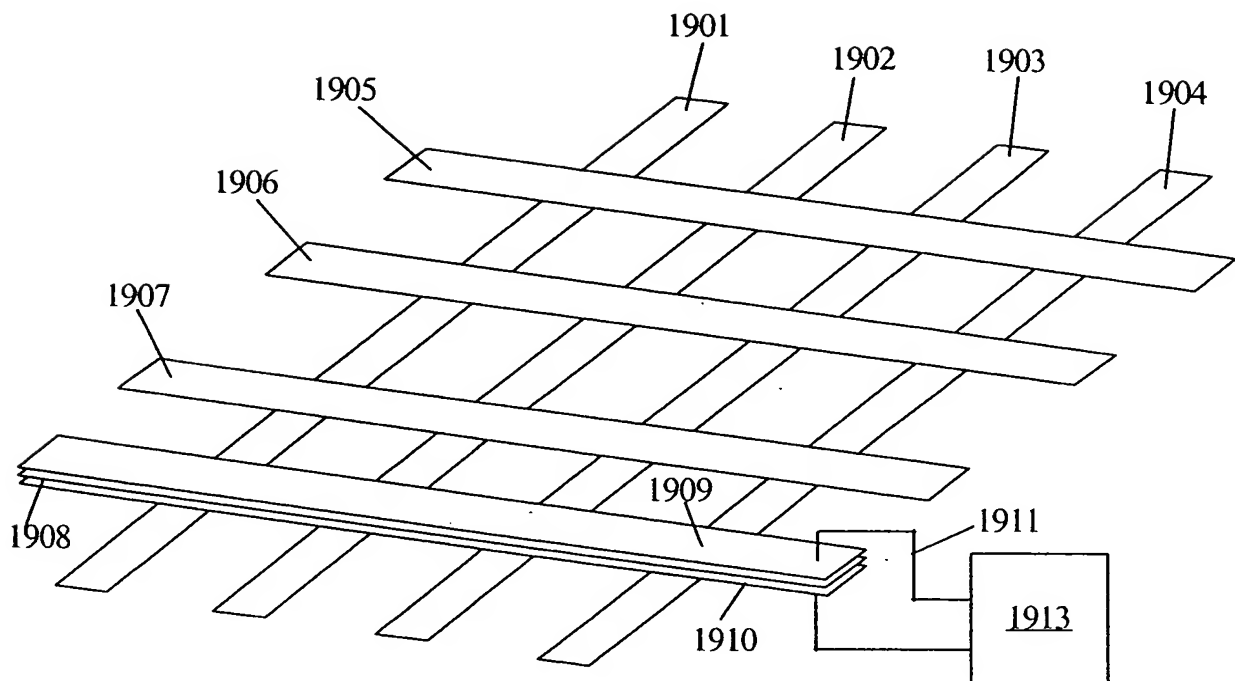


Figure 19

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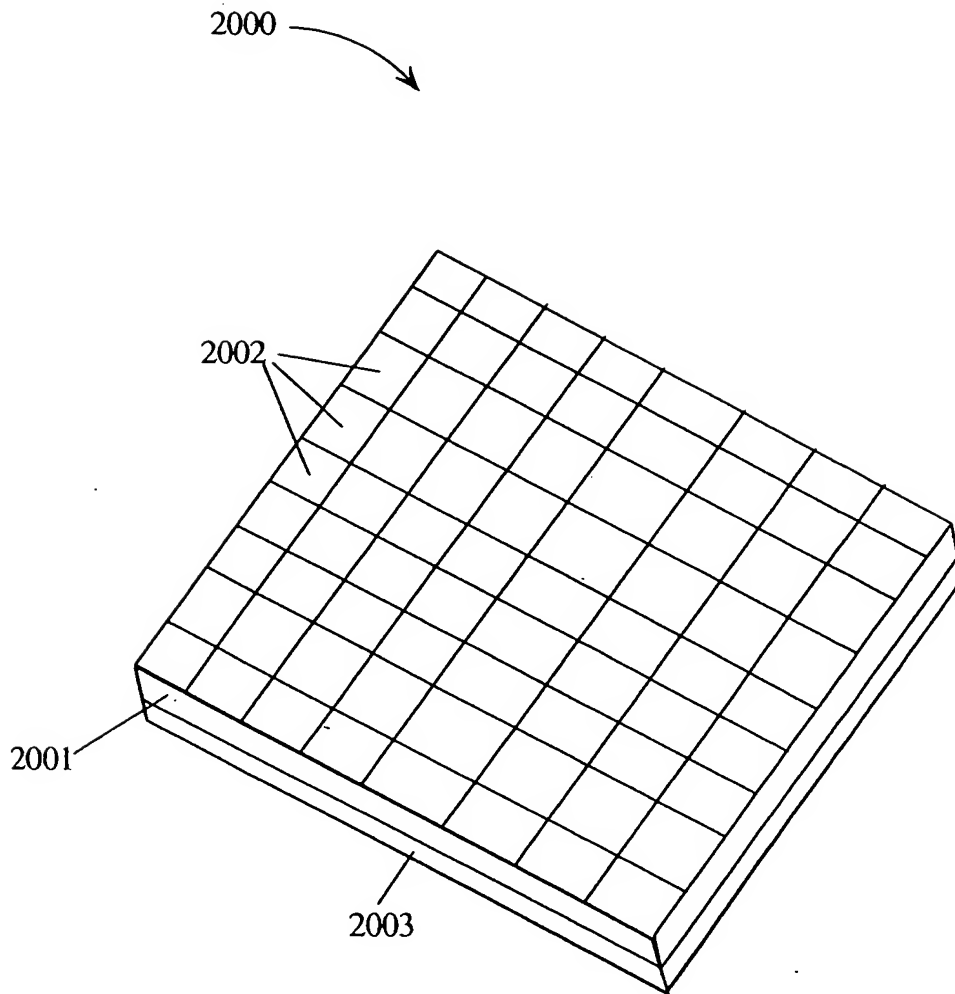


Figure 20

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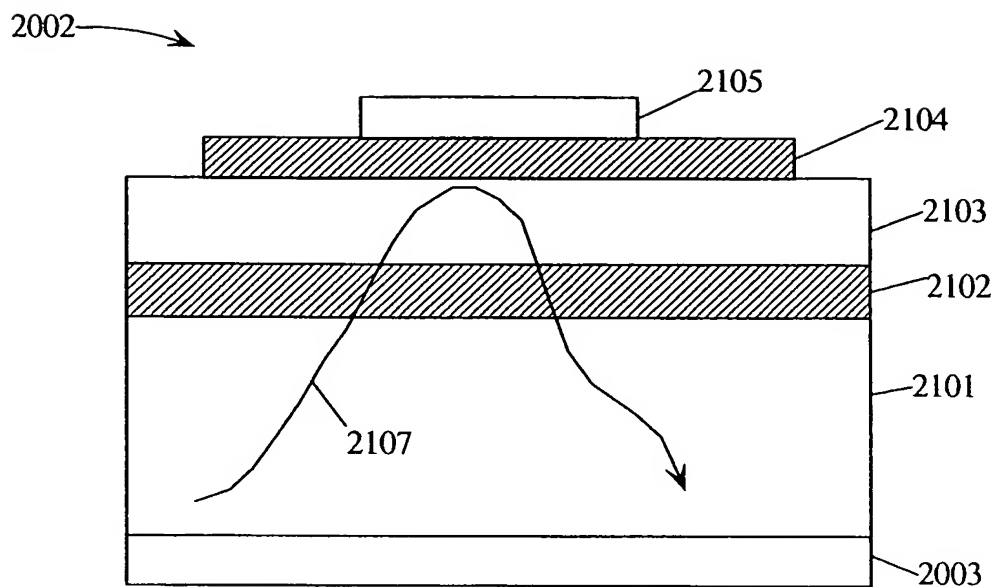


Figure 21A

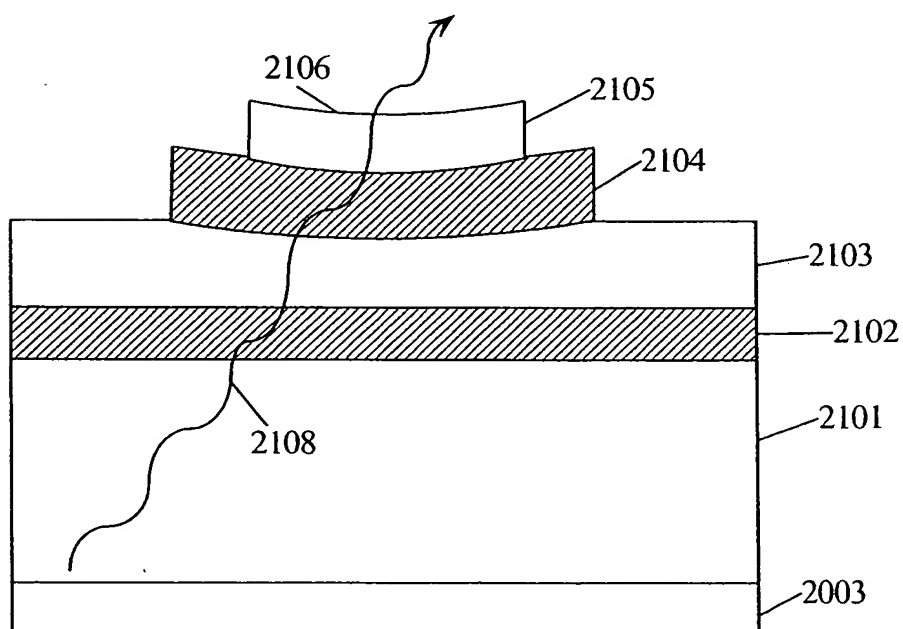


Figure 21B

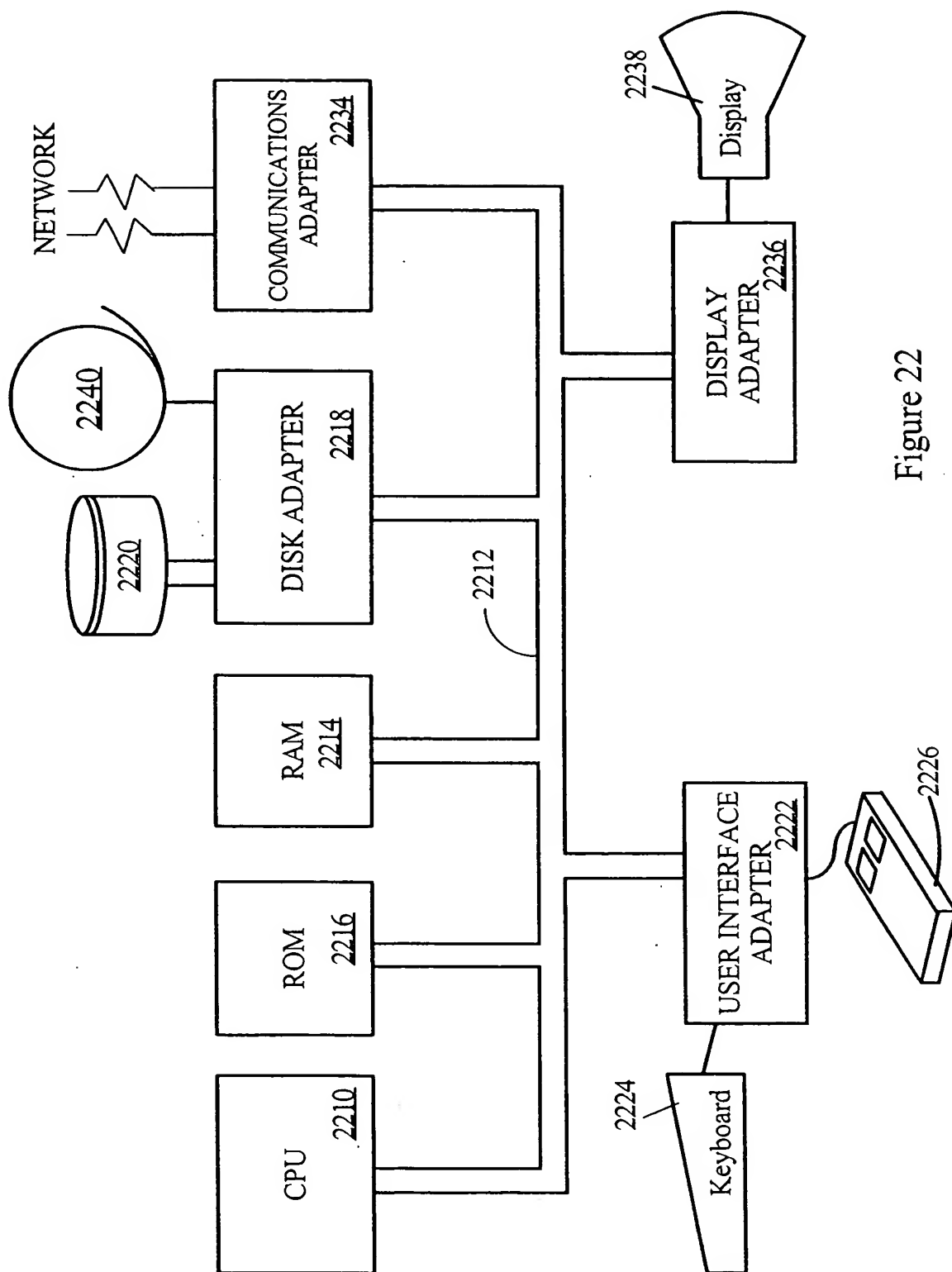


Figure 22